

WHAT IS CLAIMED IS:

1. A measurement and marking device, comprising:
a housing;
a positional sensing assembly mounted in the housing and adapted to sense a position of the housing relative to an object as the housing is moved along a surface of the object;
a printhead assembly mounted in the housing and adapted to print on the surface of the object as the housing is moved along the surface of the object; and
a controller mounted in the housing and communicating with the positional sensing assembly and the printhead assembly, wherein the controller is adapted to operate the printhead assembly to print a mark on the surface of the object based on the position of the housing relative to the object as the housing is moved along the surface of the object.

2. The measurement and marking device of claim 1, wherein the positional sensing assembly is adapted to sense a position of the housing relative to a first object and measure a dimension of the first object as the housing is moved along a surface of the first object, wherein the positional sensing assembly is adapted to sense a position of the housing relative to a second object as the housing is moved along a surface of the second object, and wherein the controller is adapted to operate the printhead assembly to print the mark on the surface of the second object based on the dimension of the first object and the position of the housing relative to the second object as the housing is moved along the surface of the second object.

3. The measurement and marking device of claim 2, further comprising:
a user interface mounted on the housing and communicating with the controller, wherein the user interface includes an input configured for operation by a user of the measurement and marking device,

wherein the controller is adapted to record the position of the housing relative to the first object when the input is operated by the user.

4. The measurement and marking device of claim 3, wherein the controller is adapted to operate the printhead assembly to print the mark on the surface of the second object based on the position of the housing relative to the first object when the input is operated by the user and the position of the housing relative to the second object as the housing is moved along the surface of the second object.

5. The measurement and marking device of claim 1, wherein the controller is adapted to operate the printhead assembly to print a plurality of markings on the surface of the object at predetermined intervals as the housing is moved along the surface of the object.

6. The measurement and marking device of claim 5, wherein the plurality of markings represent one of standard measurements and scaled measurements.

7. The measurement and marking device of claim 1, wherein the printhead assembly is adapted to print at least one of graphics and text on the surface of the object as the housing is moved along the surface of the object.

8. The measurement and marking device of claim 1, wherein the positional sensing assembly includes a wheel rotatably mounted in the housing, wherein the wheel is adapted to contact the surface of the object and rotate as the housing is moved along the surface of the object, and wherein the controller is adapted to determine the position of the housing relative to the object based on rotation of the wheel.

9. The measurement and marking device of claim 1, wherein the positional sensing assembly includes an optical sensor mounted in the housing, wherein the optical sensor is adapted to sense the surface of the object as the housing is

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moved along the surface of the object, and wherein the controller is adapted to determine the position of the housing relative to the object based on the surface of the object.

10. The measurement and marking device of claim 1, wherein the housing has a first side adapted to be oriented substantially parallel with the surface of the object as the housing is moved along the surface of the object.

11. The measurement and marking device of claim 10, wherein the printhead assembly communicates with the first side of the housing.

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12. The measurement and marking device of claim 11, wherein the printhead assembly includes a plurality of orifices formed in a front face thereof, wherein the front face communicates with the first side of the housing.

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13. The measurement and marking device of claim 1, further comprising: a power supply mounted in the housing, wherein the power supply supplies power to the measurement and marking device.

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14. A method of printing a measurement marking on an object, the method comprising the steps of:
moving a housing along a surface of the object;
sensing a position of the housing relative to the object; and
printing the measurement marking on the surface of the object when the position of the housing relative to the object corresponds to a predetermined position.

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15. The method of claim 14, wherein the step of printing the measurement marking on the surface of the object includes printing a plurality of measurement markings on the surface of the object at predetermined intervals.

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16. The method of claim 15, wherein printing the plurality of measurement markings includes printing one of a plurality of standard length units and a plurality of scaled length units on the surface of the object.

17. The method of claim 14, wherein the step of printing the measurement marking on the surface of the object includes printing the measurement marking with a printhead assembly mounted in the housing.

18. The method of claim 14, wherein the step of printing the measurement marking on the surface of the object includes printing at least one of graphics and text on the surface of the object.

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19. The method of claim 14, further comprising the step of:
receiving and storing the predetermined position of the housing for printing the measurement marking at a controller mounted within the housing.

20. The method of claim 14, wherein the step of moving the housing along the surface of the object includes contacting the surface of the object with a wheel rotatably mounted in the housing and rotating the wheel relative to the housing, and wherein the step of sensing the position of the housing includes determining the position of the housing relative to the object based on rotation of the wheel.

21. The method of claim 14, wherein the step of moving the housing along the surface of the object includes sensing the surface of the object with an optical sensor mounted in the housing, and wherein the step of sensing the position of the housing includes determining the position of the housing relative to the object based on the surface of the object.

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22. A method of transferring a measurement of a first object to a second object, the method comprising the steps of:

moving a housing along a surface of the first object;
sensing a position of the housing relative to the first object as the housing is moved along the surface of the first object;
locating a feature of the first object, including recording the position of the housing at the feature of the first object;
moving the housing along a surface of the second object;
sensing a position of the housing relative to the second object as the housing is moved along the surface of the second object; and
printing a mark representing the feature of the first object on the surface of the second object when the position of the housing relative to the second object coincides with the position of the housing at the feature of the first object.

23. The method of claim 22, wherein the step of sensing the position of the housing relative to the first object includes measuring a dimension of the first object, wherein the step of locating the feature of the first object includes measuring at least one of a dimension to and a dimension of the feature of the first object and wherein the step of printing the mark on the surface of the second object includes printing the mark on the surface of the second object when the position of the housing relative to the second object coincides with the at least one of the dimension to and the dimension of the feature of the first object.

24. The method of claim 22, wherein the step of locating the feature of the first object includes receiving a user input at the position of the housing at the feature of the first object.

25. The method of claim 24, wherein recording the position of the housing at the feature of the first object includes storing the position of the housing at the feature of the first object with the user input in a controller mounted in the housing.

26. The method of claim 22, wherein the step of printing the mark on the surface of the second object includes printing the mark on the surface of the second object with a printhead assembly mounted in the housing.

27. The method of claim 22, wherein the step of printing the mark on the surface of the second object includes printing at least one of graphics and text on the surface of the second object.

28. The method of claim 22, wherein the steps of moving the housing along the surface of the first object and the surface of the second object each include contacting the surface of the first object and the surface of the second object with a wheel rotatably mounted in the housing and rotating the wheel, wherein the steps of sensing the position of the housing relative to the first object and the second object each include determining the position of the housing relative to the first object and the second object based on rotation of the wheel.

29. The method of claim 22, wherein the steps of moving the housing along the surface of the first object and the surface of the second object each include sensing the surface of the first object and the surface of the second object with an optical sensor mounted in the housing, and wherein the steps of sensing the position of the housing relative to the first object and the second object each include determining the position of the housing relative to the first object and the second object based on the surface of the first object and the surface of the second object, respectively.

I claim:

1. A handheld inkjet printing mechanism for printing a selected image on a print surface of a solid body or a semi-flexible body, comprising:

5 a chassis;

a controller supported by the chassis, with the controller storing the selected image therein;

an inkjet printhead supported by the chassis to selectively eject inkjet ink onto the print surface in response to the controller; and

10 a printhead-to-print surface spacing device to control the spacing between the printhead and the print surface, with the spacing device being supported by the chassis to traverse over the print surface when moved therealong by an operator while the printhead selectively ejects ink onto the print surface to record the selected image thereon.

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2. A handheld inkjet printing mechanism according to claim 1, further including a positional monitoring device supported by the chassis to generate a positional signal for the controller to indicate the position of the printhead relative to the print surface when moved therealong by the operator.

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3. A handheld inkjet printing mechanism according to claim 2 wherein the positional monitoring device comprises an optical sensor.

4. A handheld inkjet printing mechanism according to claim 2 wherein the positional monitoring device comprises:

25 a rotary encoder wheel supported by the chassis to roll along the print surface during said movement by the operator, with the rotary encoder wheel having positional indicia; and

a sensor for reading the positional indicia and in response thereto, generating
30 the positional signal.

5 5. A handheld inkjet printing mechanism according to claim 4 wherein:
 the spacing device comprises plural wheels which roll along the print surface
 during said movement by the operator; and
 the rotary encoder wheel is mounted to a side surface of one of the plural
 wheels.

10 6. A handheld inkjet printing mechanism according to claim 1 wherein the
 spacing device comprises plural wheels rotationally supported by the chassis to roll
 along the print surface during said movement by the operator.

 7. A handheld inkjet printing mechanism according to claim 1 wherein the
 spacing device comprises protrusions projecting from the chassis to slide along the
 print surface during said movement by the operator.

15 8. A handheld inkjet printing mechanism according to claim 1 wherein the
 controller is configured to be coupled to a replaceable image cartridge from which
 the controller receives the selected image.

20 9. A handheld inkjet printing mechanism according to claim 8 wherein the
 chassis defines an image cartridge receptacle slot into which the replaceable image
 cartridge may be inserted to deliver the selected image to the controller.

25 10. A handheld inkjet printing mechanism according to claim 9 for receiving
 a replaceable image cartridge having a display surface for showing a representation
 of the selected image, wherein the chassis defines a window therethrough located to
 view the representation of the selected image on the image cartridge when inserted
 into the receptacle slot.

30 11. A handheld inkjet printing mechanism according to claim 1 further
 including a coupling device to couple the controller to a computer to receive the
 selected image.

12. A handheld inkjet printing mechanism according to claim 1 further including a coupling device to couple the controller to a scanner to receive the selected image.

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13. A handheld inkjet printing mechanism according to claim 1 further including an input device coupled the controller to modify the selected image.

14. A handheld inkjet printing mechanism according to claim 13 wherein the
10 input device comprises a keyboard supported by the chassis.

15. A handheld inkjet printing mechanism according to claim 1 further including a display device supported by the chassis and coupled to the controller.

15 16. A handheld inkjet printing mechanism according to claim 15 wherein the display device is coupled to the controller to show a representation of the selected image.

17. A handheld inkjet printing mechanism according to claim 15 wherein the
20 display device is coupled to the controller to display usage instructions.

18. A handheld inkjet printing mechanism according to claim 15 wherein the display device comprises a display screen.

25 19. A handheld inkjet printing mechanism according to claim 1 wherein the chassis comprises a main portion and a printhead portion, which supports the printhead, with the main portion being flexibly coupled to the printhead portion.

20. A handheld inkjet printing mechanism according to claim 19 wherein the
30 chassis main portion is flexibly coupled to the printhead portion at a gimbal-mounted neck portion of the chassis.

2 1. A handheld inkjet printing mechanism according to claim 19:
 wherein the chassis main portion houses an ink reservoir; and
 further including a conduit which fluidically couples the ink reservoir to the
 5 printhead.

22. A handheld inkjet printing mechanism according to claim 21 wherein:
 the chassis main portion is flexibly coupled to the printhead portion at a
 gimbal-mounted neck portion of the chassis; and
 10 the conduit comprises a flexible conduit which passes through the neck
 portion of the chassis.

23. A handheld inkjet printing mechanism according to claim 19 for use
 with a printhead servicing unit having a printhead receptacle, wherein the chassis
 15 printhead portion is sized to be received by the servicing unit printhead receptacle.

24. A handheld inkjet printing mechanism according to claim 1 for use with
 a printhead servicing unit having a printhead receptacle, wherein a portion of the
 chassis which supports the printhead is sized to be received by the servicing unit
 20 printhead receptacle.

25. A method of printing a selected image on a print surface of a solid body
 or a semi-flexible body, comprising the steps of:
 traversing a chassis supporting an inkjet printhead over the print surface;
 25 during the traversing step, maintaining a selected spacing between the inkjet
 printhead and the print surface; and
 selectively ejecting ink from the printhead to record the selected image on
 the print surface during the traversing step.

30 26. A method according to claim 25 further including the step of monitoring
 the position of the printhead along the print surface during the traversing step.

27. A method according to claim 26 further including the steps of:
generating a positional signal to indicate the position of the printhead in
response to the monitoring step; and
5 controlling the ejecting step in response to the generating step.

28. A method according to claim 25 wherein the monitoring step comprises
the step of optically sensing the position of the printhead along the print surface
during the traversing step.

29. A method according to claim 25 wherein the traversing step comprises
the step of rolling the chassis across the print surface using plural rollers rotationally
supported by the chassis.

30. A method according to claim 25 wherein the traversing step comprises
the step of sliding the chassis across the print surface on protrusions projecting from
the chassis.

31. A method according to claim 25 further including the step of receiving
20 the selected image from a computer.

32. A method according to claim 25 further including the step of
down-loading the selected image from a website.

33. A method according to claim 25 further including the step of receiving
25 the selected image from a scanner.

34. A method according to claim 25 further including the step of
customizing the selected image using an input device supported by the chassis.

35. A method according to claim 34 wherein the customizing step comprising entering information using an input device comprising a keyboard supported by the chassis.

5 36. A method according to claim 25 further including the step of displaying the selected image using a display device supported by the chassis.

37. A method according to claim 25 further including the step of displaying the usage instructions on a display screen supported by the chassis.

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38. A method according to claim 25 wherein:

the chassis comprises a main portion and a printhead portion, with the printhead portion supporting the printhead, and with the main portion being flexibly coupled to the printhead portion; and

15 the traversing step includes the step of flexing the main portion of the chassis with respect to the printhead portion.

39. A method according to claim 25 wherein:

20 the chassis comprises a main portion and a printhead portion, with the printhead portion supporting the printhead, and with the main portion being flexibly coupled to the printhead portion at a flexible neck portion; and

the method further includes the steps of storing ink in a reservoir housed in the main portion, and delivering ink from the reservoir to the printhead through the neck portion.

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40. A method according to claim 25 further including the step of, following the ejecting step to record the selected image on the print surface, servicing the printhead by placing at least a portion of the chassis in a printhead servicing unit.